



US005291061A

**United States Patent** [19]**Ball**

[11] **Patent Number:** 5,291,061  
 [45] **Date of Patent:** Mar. 1, 1994

**[54] MULTI-CHIP STACKED DEVICES****[75] Inventor:** Michael B. Ball, Boise, Id.**[73] Assignee:** Micron Semiconductor, Inc., Boise, Id.**[21] Appl. No.:** 43,503**[22] Filed:** Apr. 6, 1993**[51] Int. Cl.<sup>3</sup>** ..... H01L 23/48; H01L 29/40;  
H01L 23/02; H01L 23/32**[52] U.S. Cl.** ..... 257/686; 257/686;  
257/782; 257/783; 257/676**[58] Field of Search** ..... 257/777, 782, 783, 676,  
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Springer & Hoopes**[57] ABSTRACT**

A multiple stacked die device is disclosed that contains up to four dies and does not exceed the height of current single die packages. Close-tolerance stacking is made possible by a low-loop-profile wire-bonding operation and thin-adhesive layer between the stacked dies.

**2 Claims, 2 Drawing Sheets**

1c542 U.S. PTO  
 09/427123  
 10/21/99

